7. (AMENDED) A system for high-speed, 3D imaging of optically-invisible radiation, the system comprising:

a detector subsystem for detecting optically-invisible radiation within an environment to obtain signals;

a signal processor for processing the signals to obtain stereoscopic data; and

a display subsystem for displaying the stereoscopic data directly to a user's eyes in the form of optically-visible radiation images superimposed on a view of the environment so that the user can obtain a stereoscopic 3D view of the radiation by utilizing natural human stereo imaging processes.

Remarks

With respect to the Examiner's rejections based on the prior art under 35 U.S.C. § 102 and 103, the Examiner is requested to consider the following remarks.

Basically, the present invention, as defined by each of the amended independent claims, provides the display of stereoscopic data directly to a user's eyes in the form of radiation images superimposed on a view of the environment so the user can obtain or see a stereoscopic 3D view of the radiation by utilizing natural human stereo imaging processes. Support for the amendment to the claims can be found in the specification on page 14, lines 18-20, page 14, line 29 through page 15, line 2, and page 23, lines 16-20.

As disclosed on lines 15-17 of the Abstract, "The invention exploits the human brain's ability to naturally reconstruct a 3D, stereoscopic image from 2D images generated by two "imagers" separated by a known angle(s) without the need for 3D mathematical image reconstruction. As further noted on page 20, lines 7-9, natural human stereo imaging processes include "parallel line convergence, binocular disparity, shading and texture cues, and image motion parallax."

As noted on page 17, lines 1-7, "care must be taken in the selection of the detector subsystem to ensure that appropriate stereoscopic data result. For example, the

primary detector subsystem used for the ionizing radiation visualization could be a pair of gamma-ray cameras adapted to provide the stereoscopic data. For optimal performance, these cameras would require not only planar imaging capability from different angles, but focusing or production by other means of the image information needed for stereoscopic vision."

As also noted on page 14, lines 17-18, the stereoscopic data of the present invention may be derived from 3D maps which are reconstructed by means of topographic algorithms. As further noted on page 19, lines 8-11, a computer could use a mapping algorithm to reconstruct and interpolate the data into one smooth 3D map. This map could then be processed to obtain the necessary stereoscopic data.

The claimed "stereoscopic data" is simply not found in the prior art of record. Such data is provided by a carefully selected detector subsystem and not merely by the detector subsystems of the prior art wherein only planar imaging is obtained.

Simply put, the prior art of record taken either alone or in combination fails to disclose the claimed "stereoscopic data displayed directly to a user's eyes," as only provided by the present invention, in the form of radiation images superimposed on a view of the environment so that the user can obtain a stereoscopic 3D view of the radiation by utilizing natural human stereo imaging processes. In particular, USPN 5,557,108 to Tumer discloses images being displayed on a CRT screen, not directly to a user's eyes. (See, Tumer, col. 2, ll. 17-20). Furthermore, a CRT is a well-known planar (or 2D) display. Similarly, the so-called "three-dimensional animated map" disclosed in USPN 5,751,576 to Monson is a perspective view. (See, Monson, Figures 1 and 2, col. 6, ll. 32-39). As clearly illustrated by Figures 1 and 2 of Monson, the images are planar, 2D views, not a stereoscopic 3D view.

The prior art taken either alone or in combination with one another simply fails to disclose the display of stereoscopic data directly to a user's eyes in the form of radiation images and such images are superimposed on a view so that the user obtains a stereoscopic 3D view of radiation by utilizing his or her stereo imaging processes.

Consequently, in view of the above and in the absence of better art Applicants' Attorney respectfully submits that the application is in condition for allowance which allowance is respectfully requested.

Respectfully submitted,

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By _____

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Date: January 20, 2003

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Attachment

VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (AMENDED) A method for high-speed, 3D imaging of optically-invisible radiation, the method comprising:

detecting optically-invisible radiation within an environment to obtain signals;

processing the signals to obtain stereoscopic data; and

displaying the stereoscopic data directly to a user's eyes in the form of optically-visible radiation images superimposed on a view of the environment so that [a] the user can obtain a stereoscopic 3D view of the radiation by utilizing natural human stereo imaging processes.

7. (AMENDED) A system for high-speed, 3D imaging of optically-invisible radiation, the system comprising:

a detector subsystem for detecting optically-invisible radiation within an environment to obtain signals;

a signal processor for processing the signals to obtain stereoscopic data; and

a display subsystem for displaying the stereoscopic data directly to a user's eyes in the form of optically-visible radiation images superimposed on a view of the environment so that [a] the user can obtain a stereoscopic 3D view of the radiation by utilizing natural human stereo imaging processes.